AMENDMENTS TO THE CLAIMS

Claims 1-4 are pending in the application. Changes in the claims are shown by strikethrough ("~~—~~") or double brackets ("[[]]") for deleted language and underlining ("___") for added language.

1. (Currently amended) A method for treating axonal degeneration of the peripheral nervous system of a patient comprising:

administering to [[a]] the patient a compound of the formula:

M^1-AA^2-AA^1-CO-NR_3R_4

a pharmaceutically acceptable salt or prodrug thereof, wherein

M^1 is selected from the group consisting of H, NH_2-CO-, NH_2-CS-, NH_2-SO_2-, X-NH-CO-, X_2N-CO-, X-NH-CS-, X_2N-CS-, X-NH-SO_2-, X_2N-SO_2-, X-CO-, X-CS-, X-, Y-SO_2-, Y-O-CO-, Y-O-CS-, morpholine-CO-, and biotinyl;

X is selected from the group consisting of H, C_{1-10} alkyl, C_{3-15} cyclized alkyl, C_{1-10} fluoroalkyl, C_{1-10} alkyl substituted with J, C_{1-10} fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C_{1-10} fluoroalkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with two attached phenyl groups, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with two attached phenyl groups substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group, and C_{1-10} alkyl monosubstituted with M^2;

Y is selected from the group consisting of C_{1-10} alkyl, C_{3-15} cyclized alkyl, C_{1-10} fluoroalkyl, C_{1-10} alkyl substituted with J, C_{1-10} fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C_{1-10} fluoroalkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with two attached

phenyl groups, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with two attached phenyl groups substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group, M^2, and C_{1-10} alkyl monosubstituted with M^2;

M^2 is selected from the group consisting of 2-furyl, 2-tetrahydrofuryl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-pyrazinyl, 2-quinolinyl, 1-tetrahydroquinolinyl, 1-isoquinolinyl, 2-tetrahydroisoquinolinyl, and $-N(CH_2CH_2)_2O$;

J is selected from the group consisting of halogen, CO_2H, OH, CN, NO_2, NH_2, C_{1-10} alkoxy, C_{1-10} alkylamino, C_{2-12} dialkylamino, C_{1-10} alkyl-O-CO-, C_{1-10} alkyl-O-CO-NH-, C_{1-10} alkyl-S-, and $-N(CH_2CH_2)_2O$;

K is selected from the group consisting of halogen, C_{1-10} alkyl, C_{1-10} perfluoroalkyl, C_{1-10} alkoxy, phenoxy, NO_2, CN, OH, CO_2H, amino, C_{1-10} alkylamino, C_{2-12} dialkylamino, C_{1-10} acyl, and C_{1-10} alkoxy-CO-, and C_{1-10} alkyl-S-, and $-N(CH_2CH_2)_2O$;

AA^1 and AA^2 side chain blocked or unblocked amino acids with the L configuration, D configuration, or no chirality at the [[□]]α-carbon selected from the group consisting of alanine, valine, leucine, isoleucine, proline, methionine, methionine sulfoxide, phenylalanine, tryptophan, glycine, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, histidine, phenylglycine, beta-alanine, norleucine, norvaline, alpha-aminobutanoic acid, epsilon-aminocaproic acid, citrulline, hydroxyproline, ornithine, homoarginine, sarcosine, indoline 2-carboxylic acid, 2-azetidinecarboxylic acid, pipecolinic acid (2-piperidine carboxylic acid), O-methylserine, O-ethylserine, S-methylcysteine, S-ethylcysteine, S-benzylcysteine, NH_2-$CH(CH_2CHEt_2)$-CO_2H, alpha-aminoheptanoic acid, NH_2-$CH(CH_2$-1-naphthyl)-CO_2H, NH_2-$CH(CH_2$-2-naphthyl)-CO_2H, NH_2-$CH(CH_2$-cyclohexyl)-CO_2H, NH_2-$CH(CH_2$-cyclopentyl)-CO_2H, NH_2-$CH(CH_2$-cyclobutyl)-CO_2H, NH_2-$CH(CH_2$-cyclopropyl)-CO_2H, trifluoroleucine, 4-fluorophenylalanine, lysine substituted on the epsilon nitrogen with a biotinyl group, hexafluoroleucine, and NH_2-CHR^2-CO_2H;

R^2 is selected from the group consisting of C_{1-10} branched and unbranched alkyl, C_{1-10} branched and unbranched cyclized alkyl, and C_{1-10} branched and unbranched fluoroalkyl;

R^3 and R^4 are selected independently from the group consisting of

a) H, C_{1-20} alkyl, C_{1-20} cyclized alkyl, C_{1-20} alkyl with a phenyl group attached to the C_{1-20} alkyl, C_{1-20} cyclized alkyl with an attached phenyl group, C_{1-20} alkyl with an attached phenyl group monosubstituted with K, C_{1-20} alkyl with an attached phenyl group disubstituted with K, C_{1-20} alkyl with an attached phenyl group trisubstituted with K, C_{1-20} cyclized alkyl with an attached phenyl group monosubstituted with K, C_{1-10} alkyl with a morpholine [$-N(CH_2CH_2)O$] ring attached through nitrogen to the alkyl, C_{1-10} alkyl with a piperidine ring attached through nitrogen to the alkyl, C_{1-10} alkyl with a pyrrolidine ring attached through nitrogen to the alkyl, C_{1-20} alkyl with an OH group attached to the alkyl, $-CH_2CH_2OCH_2CH_2OH$, C_{1-10} with an attached 4-pyridyl group, C_{1-10} with an attached 3-pyridyl group, C_{1-10} with an attached 2-pyridyl group, C_{1-10} with an attached cyclohexyl group, $-NH-CH_2CH_2$-(4-hydroxyphenyl), $-NH-CH_2CH_2$-(3-indolyl);

b) $-CH_2CH(OH)-R^5$, and

c) $-(CH_2)_n-R^7$;

R^5 is selected from the group consisting of phenyl, phenyl monosubstituted with J, phenyl disubstituted with J, phenyl trisubstituted with J, pentafluorophenyl,

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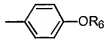

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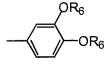

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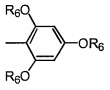

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1-naphthyl, 1-naphthyl monosubstituted with J, 1-naphthyl disubstituted with J, 2-naphthyl, 2-naphthyl monosubstituted with J, 2-naphthyl disubstituted with J, 2-pyridyl, 2-quinolinyl, and 1-isoquinolinyl;

R^6 is selected from the group consisting of C_{1-4} alkyl, C_{1-4} alkyl substituted with phenyl, phenyl, and phenyl substituted with J;

n = 1-6;

R^7 is selected from the group consisting of 2-furyl, 2-furyl monosubstituted with J, 2-pyridyl, 2-pyridyl monosubstituted with J, 3-pyridyl, 3-pyridyl monosubstituted with J, 4-pyridyl, 4-pyridyl monosubstituted with J, 2-quinolinyl, 2-quinolinyl monosubstituted with J, 1-isoquinolinyl, 1-isoquinolinyl monosubstituted with J,


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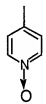
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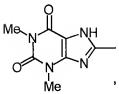
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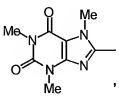
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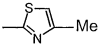
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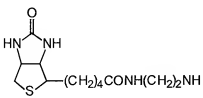
and 

in an amount sufficient to ~~inhibit~~ treat axonal degeneration.

2. (Currently amended) The method of claim 1, wherein the axonal degeneration of the peripheral nervous system is related to at least one of the following conditions: idiopathic peripheral neuropathies[[,]]; peripheral neuropathies due to genetic mutations[[,]]; peripheral neuropathies associated with uremia, rheumatologic diseases, liver diseases, and infections[[,]]; and axonal degeneration secondary to primary demyelinating disorders, inflammatory demyelinating neuropathies, multiple sclerosis, and chronic spinal cord degenerations.

3. (Original) A method of claim 1, wherein:

M^1 is selected from the group consisting of X-NH-CO- and Y-O-CO-;

AA^2 is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, and alpha-aminobutanoic acid;

AA^2 is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, alpha-aminobutanoic acid, norvaline, and phenylalanine;

X is selected from the group consisting of C_{1-10} alkyl, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group;

Y is selected from the group consisting of C_{1-10} alkyl, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group.

4. (Original) The method of claim 1, wherein the compound is selected from the group consisting of:

Z-Leu-Nva-CH_2-2-pyridyl,

Z-Leu-Abu-$CH_2CH(OH)C_6F_5$,

Z-Leu-Phe-$(CH_2)_2$Ph,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$-3-$OC_6H_4(3\text{-}CF_3)$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4(4\text{-}OCH_2Ph)$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4(4\text{-}OPh)$,

Z-Leu-Phe-CH_2-2-quinolinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4(3\text{-}OCH3)$,

Z-Leu-Abu-$(CH_2)_2C_6H_4(4\text{-}OCH3)$,

Z-Leu-Abu-$CH_2CH(OH)$-1-$C_{10}H_7$,

Z-Leu-Phe-$(CH_2)_3$-4-morpholinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4(2\text{-}OCH_3)$,

Z-Leu-Abu-CH_2-2-quinolinyl,

Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl (AK295),

Z-Leu-Abu-$(CH_2)_2$-2-(N-methylpyrrole),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$-3-$OC_6H_4(3\text{-}CF_3)$,

Z-Leu-Abu-$(CH_2)_2C_6H_5$,

Z-Leu-Phe-Et,

Z-Leu-Abu-$CH_2CH(OC_2H_5)_2$,

Z-Leu-Phe-$CH_2CH(OH)C_6H_4(4\text{-}OPh)$,

Z-Leu-Phe-$CH_2CH(OH)C_6H_4(4\text{-}OCH_2Ph)$,

Z-Leu-Abu-$CH_2C_6H_5$,

Z-Leu-Phe-$(CH_2)_2$NH-biotinyl,

Z-Leu-Phe-$(CH_2)_3$-2-tetrahydroisoquinolinyl,

Z-Leu-Abu-$CH_2CH(OH)C_6H_3(3,4\text{-}(OCH_2Ph)_2)$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4(4\text{-}OCH_3)$,

Z-Leu-Nva-$(CH_2)_3$-4-morpholinyl,

Z-Leu-Abu-CH_2-1-isoquinolinyl,

Z-Leu-Abu-Et,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$-3-$OC_6H_3(3,4\text{-}Cl_2)$,

Z-Leu-Abu-Me,

Z-Leu-Abu-$(CH_2)_3$-1-imidazolyl,

Z-Leu-Abu-$(CH_2)_2$-3-indolyl,

Z-Leu-Abu-$(CH_2)_3$-2-tetrahydroisoquinolinyl,

Z-Leu-Abu-CH_2-2-tetrahydrofuryl,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(4-$N(CH_3)_2$),

Z-Leu-Phe-*n*-Pr,

Z-Leu-Abu-$CH_2CH(OH)$-2-$C_{10}H_7$,

Z-Leu-Phe-Me,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(3-CF_3),

Z-Leu-Abu-$(CH_2)_3$-1-tetrahydroquinolinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4$(4-OH),

Z-Leu-Abu-$CH_2CH(OH)C_6H_2$(3,4,5-$(OCH_3)_3$),

Z-Leu-Phe-$(CH_2)_3$-1-tetrahydroquinolinyl,

Z-Leu-Abu-$(CH_2)_2$-2-pyridyl,

Z-Leu-Abu-CH_2-C_6H_7(1,3,3-$(CH_3)_3$-5-OH),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(3-CF3),

Z-Leu-Phe-$CH_2CH(OH)C_6H_3$(3,4-$(OCH_2Ph)_2$),

Z-Leu-Abu-$(CH_2)_5OH$,

Z-Leu-Abu-$CH_2CH(OCH_3)_2$,

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$-3-OC_6H_3(3,4-Cl_2),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(3-OPh),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(4-$N(CH_3)_2$),

Z-Leu-Abu-CH_2-2-pyridyl,

Z-Leu-Abu-$(CH_2)_2O(CH_2)_2OH$,

Z-Leu-Phe-CH_2-2-pyridyl,

Z-Leu-Abu-$(CH_2)_2$NH-biotinyl,

Z-Leu-Abu-CH_2-C_6H_{11},

Z-Leu-Phe-$CH_2CH(OH)C_6F_5$,

Z-Leu-Abu-CH_2-2-furyl,

Z-Leu-Abu-$(CH_2)_3C_6H_5$,

Z-Leu-Abu-$(CH_2)_2OH$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(3-OPh),

Z-Leu-Abu-$(CH_2)_2$-4-morpholinyl,

Z-Leu-Abu-$CH_2CH(OH)Ph$,

Z-Leu-Abu-CH_2-4-pyridyl,

Z-Leu-Abu-$(CH_2)_3$-1-pyrrolidine-2-one,

Z-Leu-Phe-$CH_2CH(OH)Ph$,

Z-Leu-Abu-$CH_2C_6H_3(3,5\text{-}(OCH_3)_2)$,

Z-Leu-Nva-$CH_2CH(OH)Ph$,

Z-Leu-Abu-CH_2-8-caffeinyl,

Z-Leu-Abu-*n*-Pr,

Z-Leu-Abu-CH_2-3-pyridyl, and

Z-Leu-Phe-CH_2Ph.

5-22. (Cancelled)

23. (New) The method of claim 1, wherein the compound is Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl.

24. (New) The method of claim 2, wherein the compound is Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl.

25. (New) The method of claim 1, wherein the axonal degeneration is chemically-induced axonal degeneration.

26. (New) A method for treating axonal degeneration of the peripheral nervous system of a mammalian host comprising:

administering to the mammalian host a compound of the formula:

M^1-AA^2-AA^1-CO-NR_3R_4

a pharmaceutically acceptable salt or prodrug thereof, wherein

M^1 is selected from the group consisting of H, NH_2-CO-, NH_2-CS-, NH_2-SO_2-, X-NH-CO-, X_2N-CO-, X-NH-CS-, X_2N-CS-, X-NH-SO_2-, X_2N-SO_2-, X-CO-, X-CS-, X-, Y-SO_2-, Y-O-CO-, Y-O-CS-, morpholine-CO-, and biotinyl;

X is selected from the group consisting of H, C_{1-10} alkyl, C_{3-15} cyclized alkyl, C_{1-10} fluoroalkyl, C_{1-10} alkyl substituted with J, C_{1-10} fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C_{1-10} fluoroalkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with two attached phenyl groups, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with two attached phenyl groups substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group, and C_{1-10} alkyl monosubstituted with M^2;

Y is selected from the group consisting of C_{1-10} alkyl, C_{3-15} cyclized alkyl, C_{1-10} fluoroalkyl, C_{1-10} alkyl substituted with J, C_{1-10} fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C_{1-10} fluoroalkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with two attached phenyl groups, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with two attached phenyl groups substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group, M^2, and C_{1-10} alkyl monosubstituted with M^2;

M^2 is selected from the group consisting of 2-furyl, 2-tetrahydrofuryl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-pyrazinyl, 2-quinolinyl, 1-tetrahydroquinolinyl, 1-isoquinolinyl, 2-tetrahydroisoquinolinyl, and $-N(CH_2CH_2)_2O$;

J is selected from the group consisting of halogen, CO_2H, OH, CN, NO_2, NH_2, C_{1-10} alkoxy, C_{1-10} alkylamino, C_{2-12} dialkylamino, C_{1-10} alkyl-O-CO-, C_{1-10} alkyl-O-CO-NH-, C_{1-10} alkyl-S-, and $-N(CH_2CH_2)_2O$;

K is selected from the group consisting of halogen, C_{1-10} alkyl, C_{1-10} perfluoroalkyl, C_{1-10} alkoxy, phenoxy, NO_2, CN, OH, CO_2H, amino, C_{1-10} alkylamino,

C_{2-12} dialkylamino, C_{1-10} acyl, and C_{1-10} alkoxy-CO-, and C_{1-10} alkyl-S-, and -$N(CH_2CH_2)_2O$;

AA^1 and AA^2 side chain blocked or unblocked amino acids with the L configuration, D configuration, or no chirality at the [[□]]α-carbon selected from the group consisting of alanine, valine, leucine, isoleucine, proline, methionine, methionine sulfoxide, phenylalanine, tryptophan, glycine, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, histidine, phenylglycine, beta-alanine, norleucine, norvaline, alpha-aminobutanoic acid, epsilon-aminocaproic acid, citrulline, hydroxyproline, ornithine, homoarginine, sarcosine, indoline 2-carboxylic acid, 2-azetidinecarboxylic acid, pipecolinic acid (2-piperidine carboxylic acid), O-methylserine, O-ethylserine, S-methylcysteine, S-ethylcysteine, S-benzylcysteine, NH_2-$CH(CH_2CHEt_2)$-CO_2H, alpha-aminoheptanoic acid, NH_2-$CH(CH_2$-1-naphthyl)-CO_2H, NH_2-$CH(CH_2$-2-naphthyl)-CO_2H, NH_2-$CH(CH_2$-cyclohexyl)-CO_2H, NH_2-$CH(CH_2$-cyclopentyl)-CO_2H, NH_2-$CH(CH_2$-cyclobutyl)-CO_2H, NH_2-$CH(CH_2$-cyclopropyl)-CO_2H, trifluoroleucine, 4-fluorophenylalanine, lysine substituted on the epsilon nitrogen with a biotinyl group, hexafluoroleucine, and NH_2-CHR^2-CO_2H;

R^2 is selected from the group consisting of C_{1-10} branched and unbranched alkyl, C_{1-10} branched and unbranched cyclized alkyl, and C_{1-10} branched and unbranched fluoroalkyl;

R^3 and R^4 are selected independently from the group consisting of

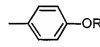
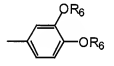
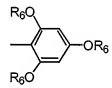
a) H, C_{1-20} alkyl, C_{1-20} cyclized alkyl, C_{1-20} alkyl with a phenyl group attached to the C_{1-20} alkyl, C_{1-20} cyclized alkyl with an attached phenyl group, C_{1-20} alkyl with an attached phenyl group monosubstituted with K, C_{1-20} alkyl with an attached phenyl group disubstituted with K, C_{1-20} alkyl with an attached phenyl group trisubstituted with K, C_{1-20} cyclized alkyl with an attached phenyl group monosubstituted with K, C_{1-10} alkyl with a morpholine [-$N(CH_2CH_2)O$] ring attached through nitrogen to the alkyl, C_{1-10} alkyl with a piperidine ring attached through nitrogen to the alkyl, C_{1-10} alkyl with a pyrrolidine ring attached through nitrogen to the alkyl, C_{1-20} alkyl with an OH group attached to the alkyl, -$CH_2CH_2OCH_2CH_2OH$, C_{1-10} with an attached 4-pyridyl group,

C_{1-10} with an attached 3-pyridyl group, C_{1-10} with an attached 2-pyridyl group, C_{1-10} with an attached cyclohexyl group, -NH-CH_2CH_2-(4-hydroxyphenyl), -NH-CH_2CH_2-(3-indolyl);

b) -$CH_2CH(OH)$-R^5, and

c) -$(CH_2)_n$-R^7;

R^5 is selected from the group consisting of phenyl, phenyl monosubstituted with J, phenyl disubstituted with J, phenyl trisubstituted with J, pentafluorophenyl,

1-naphthyl, 1-naphthyl monosubstituted with J, 1-naphthyl disubstituted with J, 2-naphthyl, 2-naphthyl monosubstituted with J, 2-naphthyl disubstituted with J, 2-pyridyl, 2-quinolinyl, and 1-isoquinolinyl;

R^6 is selected from the group consisting of C_{1-4} alkyl, C_{1-4} alkyl substituted with phenyl, phenyl, and phenyl substituted with J;

n = 1-6;

R^7 is selected from the group consisting of 2-furyl, 2-furyl monosubstituted with J, 2-pyridyl, 2-pyridyl monosubstituted with J, 3-pyridyl, 3-pyridyl monosubstituted with J, 4-pyridyl, 4-pyridyl monosubstituted with J, 2-quinolinyl, 2-quinolinyl monosubstituted with J, 1-isoquinolinyl, 1-isoquinolinyl monosubstituted with J,





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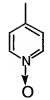
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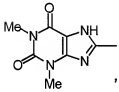
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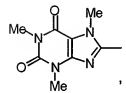
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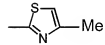
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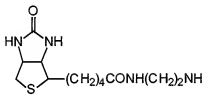
and


in an amount sufficient to treat axonal degeneration.

27. (New) The method of claim 26, wherein the axonal degeneration of the peripheral nervous system is related to at least one of the following conditions: idiopathic peripheral neuropathies; peripheral neuropathies due to genetic mutations; peripheral neuropathies associated with uremia, rheumatologic diseases, liver diseases, and infections; and axonal degeneration secondary to primary demyelinating disorders, inflammatory demyelinating neuropathies, multiple sclerosis, and chronic spinal cord degenerations.

28. (New) A method of claim 26, wherein:

M^1 is selected from the group consisting of X-NH-CO- and Y-O-CO-;

AA^2 is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, and alpha-aminobutanoic acid;

AA^2 is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, alpha-aminobutanoic acid, norvaline, and phenylalanine;

X is selected from the group consisting of C_{1-10} alkyl, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group;

Y is selected from the group consisting of C_{1-10} alkyl, C_{1-10} alkyl with an attached phenyl group, C_{1-10} alkyl with an attached phenyl group substituted with K, C_{1-10} alkyl with an attached naphthyl group, C_{1-10} alkyl with an attached naphthyl group substituted with K, C_{1-10} alkyl with an attached phenoxy group, and C_{1-10} alkyl with an attached phenoxy group substituted with K on the phenoxy group.

29. (New) The method of claim 26, wherein the compound is selected from the group consisting of:

Z-Leu-Nva-CH_2-2-pyridyl,

Z-Leu-Abu-$CH_2CH(OH)C_6F_5$,

Z-Leu-Phe-$(CH_2)_2Ph$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$-3-$OC_6H_4(3\text{-}CF_3)$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4(4\text{-}OCH_2Ph)$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4(4\text{-}OPh)$,

Z-Leu-Phe-CH_2-2-quinolinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4(3\text{-}OCH3)$,

Z-Leu-Abu-$(CH_2)_2C_6H_4(4\text{-}OCH3)$,

Z-Leu-Abu-$CH_2CH(OH)$-1-$C_{10}H_7$,

Z-Leu-Phe-$(CH_2)_3$-4-morpholinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4(2\text{-}OCH_3)$,

Z-Leu-Abu-CH_2-2-quinolinyl,

Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl (AK295),

Z-Leu-Abu-$(CH_2)_2$-2-(N-methylpyrrole),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$-3-OC_6H_4(3-CF_3),

Z-Leu-Abu-$(CH_2)_2C_6H_5$,

Z-Leu-Phe-Et,

Z-Leu-Abu-$CH_2CH(OC_2H_5)_2$,

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(4-OPh),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(4-OCH_2Ph),

Z-Leu-Abu-$CH_2C_6H_5$,

Z-Leu-Phe-$(CH_2)_2$NH-biotinyl,

Z-Leu-Phe-$(CH_2)_3$-2-tetrahydroisoquinolinyl,

Z-Leu-Abu-$CH_2CH(OH)C_6H_3$(3,4-$(OCH_2Ph)_2$),

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(4-OCH_3),

Z-Leu-Nva-$(CH_2)_3$-4-morpholinyl,

Z-Leu-Abu-CH_2-1-isoquinolinyl,

Z-Leu-Abu-Et,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$-3-OC_6H_3(3,4-Cl_2),

Z-Leu-Abu-Me,

Z-Leu-Abu-$(CH_2)_3$-1-imidazolyl,

Z-Leu-Abu-$(CH_2)_2$-3-indolyl,

Z-Leu-Abu-$(CH_2)_3$-2-tetrahydroisoquinolinyl,

Z-Leu-Abu-CH_2-2-tetrahydrofuryl,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(4-$N(CH_3)_2$),

Z-Leu-Phe-*n*-Pr,

Z-Leu-Abu-$CH_2CH(OH)$-2-$C_{10}H_7$,

Z-Leu-Phe-Me,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(3-CF_3),

Z-Leu-Abu-$(CH_2)_3$-1-tetrahydroquinolinyl,

Z-Leu-Abu-$(CH_2)_2C_6H_4$(4-OH),

Z-Leu-Abu-$CH_2CH(OH)C_6H_2$(3,4,5-$(OCH_3)_3$),

Z-Leu-Phe-$(CH_2)_3$-1-tetrahydroquinolinyl,

Z-Leu-Abu-$(CH_2)_2$-2-pyridyl,

Z-Leu-Abu-CH_2-C_6H_7(1,3,3-$(CH_3)_3$-5-OH),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(3-CF3),

Z-Leu-Phe-$CH_2CH(OH)C_6H_3$(3,4-$(OCH_2Ph)_2$),

Z-Leu-Abu-$(CH_2)_5OH$,

Z-Leu-Abu-$CH_2CH(OCH_3)_2$,

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$-3-OC_6H_3(3,4-Cl_2),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(3-OPh),

Z-Leu-Phe-$CH_2CH(OH)C_6H_4$(4-$N(CH_3)_2$),

Z-Leu-Abu-CH_2-2-pyridyl,

Z-Leu-Abu-$(CH_2)_2O(CH_2)_2OH$,

Z-Leu-Phe-CH_2-2-pyridyl,

Z-Leu-Abu-$(CH_2)_2$NH-biotinyl,

Z-Leu-Abu-CH_2-C_6H_{11},

Z-Leu-Phe-$CH_2CH(OH)C_6F_5$,

Z-Leu-Abu-CH_2-2-furyl,

Z-Leu-Abu-$(CH_2)_3C_6H_5$,

Z-Leu-Abu-$(CH_2)_2OH$,

Z-Leu-Abu-$CH_2CH(OH)C_6H_4$(3-OPh),

Z-Leu-Abu-$(CH_2)_2$-4-morpholinyl,

Z-Leu-Abu-$CH_2CH(OH)$Ph,

Z-Leu-Abu-CH_2-4-pyridyl,

Z-Leu-Abu-$(CH_2)_3$-1-pyrrolidine-2-one,

Z-Leu-Phe-$CH_2CH(OH)$Ph,

Z-Leu-Abu-$CH_2C_6H_3$(3,5-$(OCH_3)_2$),

Z-Leu-Nva-$CH_2CH(OH)$Ph,

Z-Leu-Abu-CH_2-8-caffeinyl,

Z-Leu-Abu-*n*-Pr,

Z-Leu-Abu-CH_2-3-pyridyl, and

Z-Leu-Phe-CH_2Ph.

30. (New) The method of claim 26, wherein the compound is Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl.

31. (New) The method of claim 27, wherein the compound is Z-Leu-Abu-$(CH_2)_3$-4-morpholinyl.

32. (New) The method of claim 26, wherein the axonal degeneration is chemically-induced axonal degeneration.